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**PROBE HAVING AN OPTICAL FIBER FOR
LATERALLY DIRECTING LASER BEAM**

ABSTRACT

5 An improved optical fiber for laterally directing a laser beam having
a waveguide including a tip for communicating electromagnetic radiation
in a propagation direction to the tip of the waveguide, a transmitting
surface on the tip of the waveguide, a reflecting surface on the tip of the
waveguide for internally reflecting electromagnetic radiation
10 communicated by the waveguide in a direction lateral to the propagation
direction toward a particular area on the transmitting surface, and wherein
the particular area and the reflecting surface are disposed so that
substantially all electromagnetic radiation reflected by the reflecting
surface is incident on the particular area at below a critical angle for
15 transmission through the transmitting surface in the lateral direction. By
preventing electromagnetic radiation from being incident on the
transmitting surface above a critical angle, the present invention prevents
internal reflection off the transmitting surface and improves the efficiency
of the laterally directing probe.